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NOTES ON GEOGRAPHIC DISTRIBUTION

Amphibia, Anura, *Hylodes babax* Heyer, 1982 (Hylodidae), *Dendropsophus ruschii* (Weygoldt and Peixoto, 1987) and *Bokermannohyla ibitipoca* (Caramaschi and Feio, 1990) (Hylidae): Distribution extension and geographic distribution map

Patrícia da Silva Santos [1,2*], Emanuel Teixeira da Silva [3], Bruno Henrique Barbosa Fehlberg [1], Marcus Thadeu Teixeira Santos [1], Bárbara Fernandes Zaidan [1] and Paulo Christiano de Anchietta Garcia [1,2]

1 Universidade Federal de Minas Gerais, Instituto de Ciências Biológicas, Departamento de Zoologia, Laboratório de Herpetologia. Avenida Antônio Carlos, 6627, Pampulha. CEP 31270-901. Belo Horizonte, MG, Brasil.
2 Universidade Federal de Minas Gerais, Programa de Pós Graduação em Ecologia Conservação e Manejo da Vida Silvestre. Avenida Antônio Carlos, 6627, Pampulha. CEP 31270-901. Belo Horizonte, MG, Brasil.
3 Centro Universitário de Caratinga, Centro de Estudos em Biologia. Avenida Niterói, s/n, Bairro Nossa Senhora das Graças. CEP 35300-000. Caratinga, MG, Brasil.
* Corresponding author. E-mail: *patriciasantos234@gmail.com*

ABSTRACT: We report new records for the poorly known species *Hylodes babax* (fourth record), *Dendropsophus ruschii* (fourth record) and *Bokermannohyla ibitipoca* (fifth record), from an Atlantic Forest fragment in the eastern region of the Mantiqueira mountain range in Minas Gerais, Brazil.

Hylodes babax Heyer, 1982 (Hylodidae), *Bokermannohyla ibitipoca* (Caramaschi and Feio, 1990) and *Dendropsophus ruschii* (Hylidae) (Weygoldt and Peixoto 1987) are endemic to the Atlantic Forest of southeastern Brazil (Cassini *et al.* 2007; Moura *et al.* 2008; Pirani *et al.* 2010; Frost 2011).

Most species of the genus *Hylodes* are distributed in the states of Minas Gerais, Espírito Santo, Rio de Janeiro and São Paulo, Brazil (Pirani *et al.* 2010). *Hylodes babax* is a diurnal frog of the *H. lateristrigatus* group and was described based on two specimens from Caparaó National Park, on the boundary between Espírito Santo and Minas Gerais states (Heyer 1982). The species was found in 2010 at Serra do Brigadeiro State Park (PESB) and Uaimií State Forest (FLOE Uaimií), two protected areas in Minas Gerais, located in the Mantiqueira and Espinhaço Mountains respectively (Pirani *et al.* 2010). The species is listed as *Data Deficient* (IUCN 2011) due to lack of information on its extent of occurrence, status and ecological requirements (Rocha *et al*. 2004).

Dendropsophus ruschii belongs to the *Dendropsophus parviceps* group (*sensu* Faivovich *et al*. 2005) and was described from specimens collected in the municipality of Domingos Martins and Santa Teresa (elevation approx. 800 m), Espírito Santo, Brazil (Weygoldt and Peixoto 1987). The small known geographical range and restricted habitat preferences (Peloso and Gasparini 2006) placed the species as vulnerable on the Red List of threatened species from Espírito Santo (Espírito Santo 2005) and as *Data Deficient* by IUCN Red List (2011). In 2006, the species was found in a remnant of forest adjacent to Pedra Azul State Park, Espírito Santo (*ca*. 1200 m elevation) (Peloso and Gasparini 2006) and later recorded in the municipality of Pedra Dourada (1087 m), Minas Gerais (Cassini *et al.* 2007).

Bokermannohyla ibitipoca is a member of the *B. circumdata* group (*sensu* Faivovich *et al.* 2005) described from Ibitipoca State Park, municipality of Lima Duarte, southern Minas Gerais, elevation 1200 m (Caramaschi and Feio 1990). The species was also recorded in Serra do Brigadeiro State Park, Minas Gerais state (1520 m) (Feio e*t al*. 2003; Feio *et al.* 2008), Pedra Azul State Park (1200 m) Serra Boa Vista, municipality of Domingos Martins, Espírito Santo (Moura *et al.* 2008) and Forno Grande State Park (between 1200 and 2039 m a.s.l.) (Montesinos *et al.* 2012), municipality of Castelo, Espírito Santo. The species is currently categorized as *Data Deficient* by IUCN due to uncertainties about its extent of occurrence, status and ecological requirements (Rodrigues *et al.* 2004).

During a herpetofauna inventory in an Atlantic Forest fragment in the eastern region of the Mantiqueira mountain range, municipality of Simonésia, Doce River watershed, Minas Gerais (20°04'22.1" S, 42°04'12.8" W, elevations between 1180-1626 m), we found adults of *H. babax*, *B. ibitipoca* and adults, egg masses and larvae of *D. ruschii*. The forest fragment, approx. 900 ha in area, contains the Private Natural Patrimony Reserve (Reserva Particular do Patrimônio Natural - RPPN) Mata do Sossego, managed by Fundação Biodiversitas, and Reserva Sossego do Muriqui, managed by Mineração Curimbaba. The reserve has many well-preserved streams, but the area surrounding the fragment consists of *Eucalyptus* sp. (Myrtaceae) and *Coffea arabica* (Rubiaceae) plantations, which are the main cultivars in this region. The RPPN Mata do Sossego

is considered as a "Potential" category for amphibian conservation in the state of Minas Gerais, and anurofauna inventories in this region are needed (Drummond *et al.* 2005).

Individuals were collected (collection permit SISBIO number 25082-1) by hand and euthanized by submersion in 5% lidocaine diluted in water, fixed in 10% formalin and maintained in 70% ethyl alcohol. The specimens are deposited in the Herpetological Collection of the Universidade Federal de Minas Gerais (UFMG).

The individuals of *Hylodes babax* (adult males) were compared with specimens collected by Pirani *et al.* (2010) at PESB and FLOE Uaimií deposited at Museu de Zoologia João Moojen in Universidade Federal de Viçosa (MZUFV 10226-10228, 8139-40 and 8274). These specimens were compared with the holotype (Museu de Zoologia da Universidade de São Paulo, MZUSP 57949) (Pirani *et al.* 2010). The collected specimens of *Dendropsophus ruschii* (adult males) were identified by comparison with the original description (Weygoldt and Peixoto 1987) and with topotypes deposited at Museu Nacional do Rio de Janeiro (MNRJ 31548-31550). Tadpoles were identified by comparison with the original description (Weygoldt and Peixoto 1987). The specimens of *Bokermannohyla ibitipoca* (adult males) were compared with the holotype (MNRJ 4460) and with the topotypes deposited at Herpetological Collection of the Universidade Federal de Minas Gerais (UFMG-A 6295-6299, 6301-6303).

The record of *Hylodes babax* (UFMG-A 8910-8911) (Figure 1) extends the distribution 53 km northwest of the type locality (Carapaó National Park) and 84 km northeast of Serra do Brigadeiro State Park, and constitutes the northernmost record for the species (Figure 2). The individuals of *H. babax* were observed calling at permanent and temporary streams on leaf litter, logs and stones at elevations between 1200 and 1440 m between December 2010 and April 2011.

Males of *Dendropsophus ruschii* (UFMG-A 7261-7270) (Figure 3A) were found in temporary pools associated with temporary streams and in swamp adjacent to permanent streams at 1200 and 1440 m between September 2010 and January 2011. Males were observed calling from stems and leaves of shrubs and trees 1 – 2 m above the ground. Egg masses were observed in November 2010 and January 2011 on leaves above water in pools associated with temporary streams (Figure 3B). Tadpoles and froglets were observed in these environments. The new record extends the distribution of the species 144 km west of Pedra Azul State Park, Domingos Martins and 94 km north

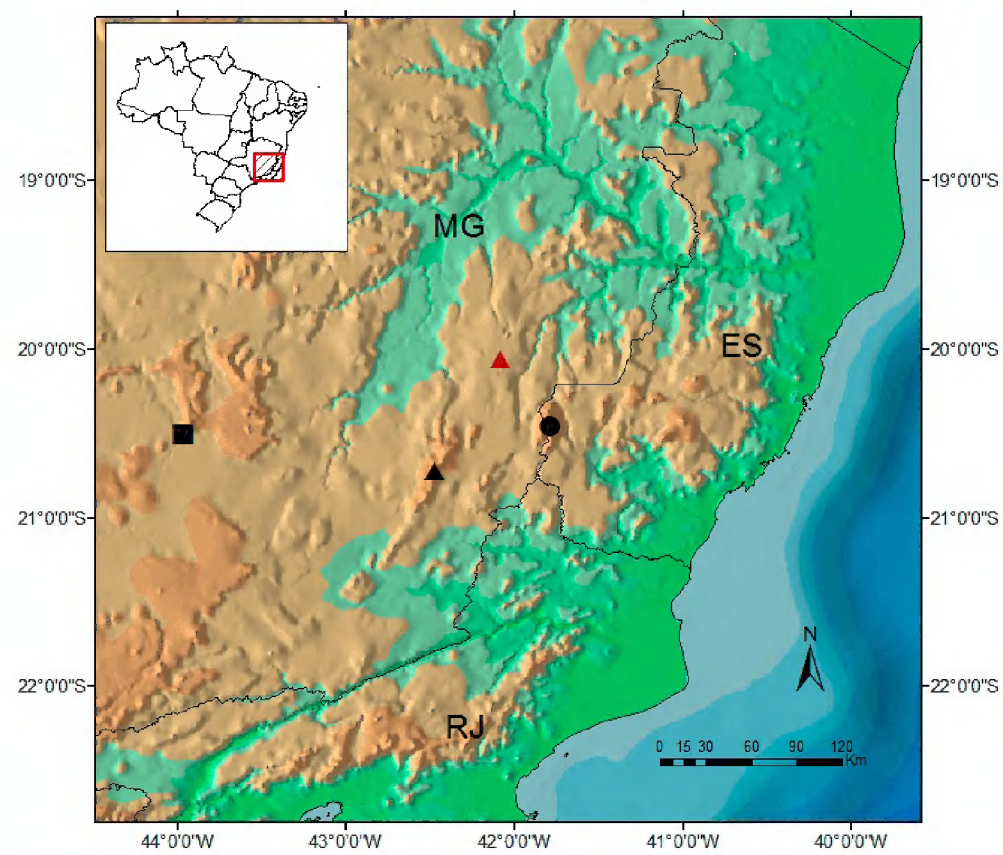

Figure 2. Distribution *of H. babax*; ES, state of Espírito Santo; MG, state of Minas Gerais and RJ state of Rio de Janeiro, Brazil. Red Triangle: RPPN Mata do Sossego and Reserva Sossego do Muriqui; Black Circle: Caparó National Park (type locality) (Heyer 1982); Black Square: FLOE Uaimií (Pirani *et al.* 2010) and Black Triangle: Serra do Brigadeiro State Park (Pirani *et al.* 2010).

Figure 3. Male of *Dendropsophus ruschii* (UFMG-A 7263) (A) collected at RPPN Mata do Sossego, Simonésia, state of Minas Gerais and egg mass on leaf over water (B) (Photo by PSS).

Figure 1. Male *Hylodes babax* (UFMG-A 8910) collected in December 2010 in RPPN Mata do Sossego, Minas Gerais, Brazil (Photo by PSS).

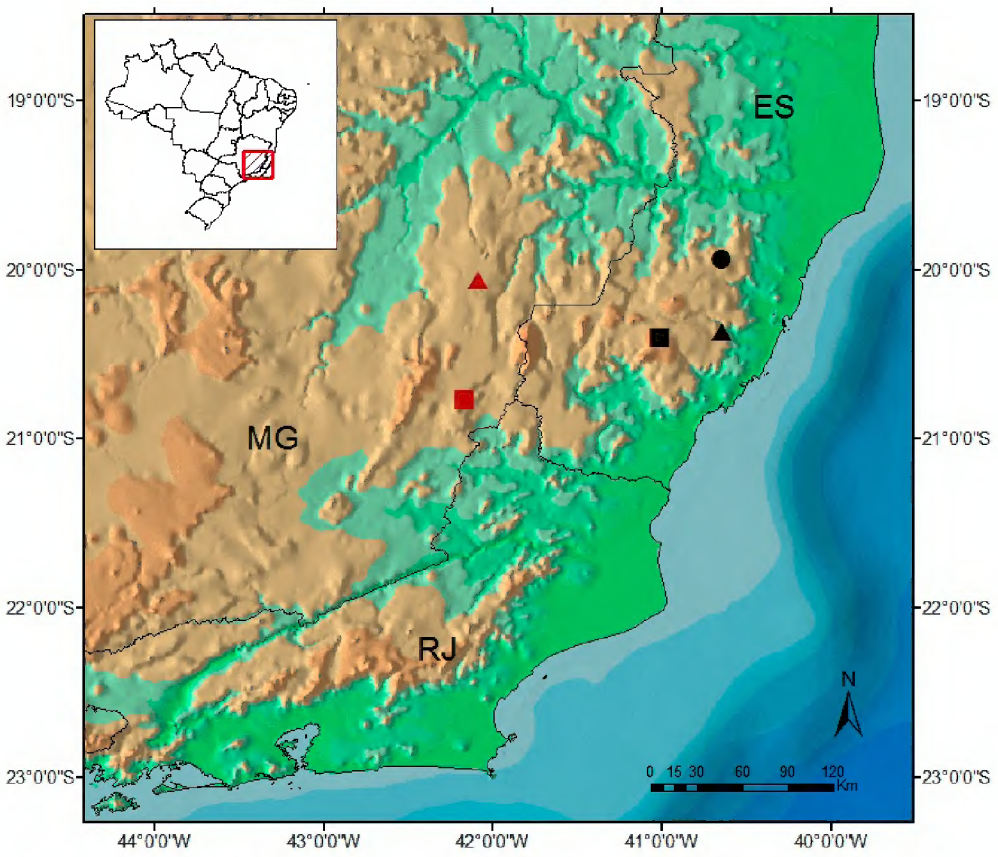

Figure 4. Distribution of *Dendropsophus ruschii*; ES, state of Espírito Santo; MG, state of Minas Gerais and RJ, state of Rio de Janeiro, Brazil. Red Triangle: RPPN Mata do Sossego and Reserva Sossego do Muriqui; Black Circle: Santa Tereza (Weygoldt and Peixoto 1987); Black Square: Pedra Azul State Park (Peloso and Gasparini 2006); Black Triangle: Domingos Martins (Weygoldt and Peixoto 1987; Peloso and Gasparini 2006) and ; Red Square: Pedra Dourada (Fazenda Floresta) (Cassini *et al.* 2007).

of Fazenda Floresta, municipality of Pedra Dourada, and constitutes the northwesternmost record of the species (Figure 4).

Bokermannohyla ibitipoca (UFMG-A 8901-8909) (Figure 5) were recorded between September 2010 and April 2011 in temporary puddles and streams at an elevation of 1440 m. Males were observed calling in December 2010 roosting on branches and in a burrow, with another male that was not calling next to the entry of the burrow. This behavior was also observed by Cruz *et al.* (2009) at Ibitipoca State Park, type locality of the species. The new record extends the distribution 182 km north of the type locality and 126 km northwest of Pedra Azul State Park, and constitutes the northernmost record for the species (Figure 6).

These new records show the importance of inventories in poorly studied regions that can expand the distribution and fill gaps in the knowledge of Brazilian anurans. Despite the placement of *Dendropsophus ruschii* as vulnerable on the Red List of Threatened Species of the State of Espírito Santo (Espírito Santo 2005), the occurrence of this species in conservation areas of Mantiqueira mountain in Minas Gerais shows that this status should be revised.

Figure 5. Male of *Bokermannohyla ibitipoca* collected in December 2010 (UFMG-A 8905) at Reserva Sossego do Muriqui, Simonésia, Minas Gerais (Photo by PSS).

Figure 6. Distribution of *Bokermannohyla ibitipoca*; ES, state of Espírito Santo; MG, state of Minas Gerais and RJ state of Rio de Janeiro, Brazil. Red Triangle: RPPN Mata do Sossego and Reserva Sossego do Muriqui; Black Circle: Ibitipoca State Park (type locality) (Caramaschi and Feio 1990) ; Black Square: Pedra Azul State Park (Moura *et al.* 2008); Black Triangle: Serra do Brigadeiro State Park (Feio *et al.* 2003; Feio *et al.* 2008) and; Red Circle: Forno Grande State Park (Montesinos *et al.* 2012).

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